Vo.6 No. 2 December, 1973

HERPETOFAUNA

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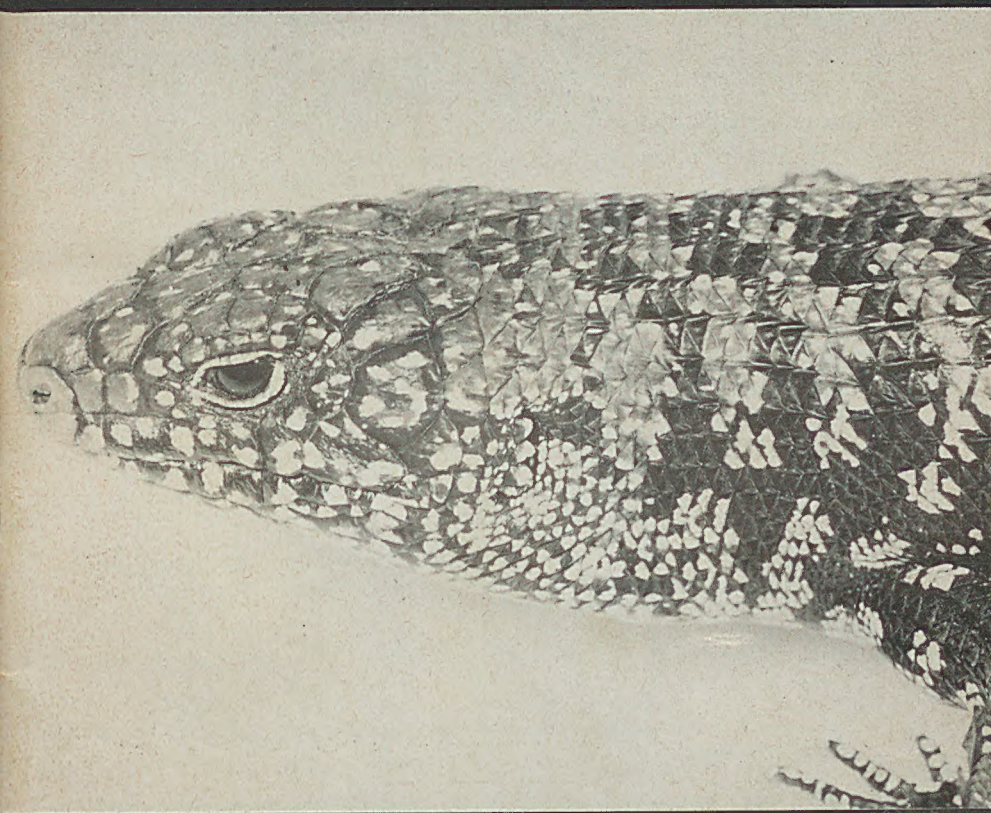

Egernia cunninghami (Cunningham's Skink)

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OBJECTS:

1. To collect and exchange information on all aspects of Australian reptiles and amphibians by means of monthly meetings and publication of the Journal of the Australian Herpetological Society.

2. To encourage the study of reptiles and amphibians – both in their natural state and in captivity.

3. To promote a sane and reasonable attitude to reptiles and amphibians among the general public.

4. To assist in the organization of field work in all parts of Australia and to render all possible assistance to members on study trips away from their home territory.

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Editorial Committee: D. Miller, G. Swan, J. Verhagen

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Cover photograph supplied by
Dr. H. Cogger

AN INTERESTING RAIN FOREST INHABITANT

by K Martin

Tryon's Skink (now known as Sphenomorphus murrayi - Ed.) is a lizard which many herpetologists tend to overlook. Brisbane collectors use them for snake food yet surprisingly little has been written about the species.

Worrell gives the distribution as "McPherson Ranges, S.E. Qld". It is common in rain forests throughout this area, also at Mt. Glorious near Brisbane and at least as far south as Dorrigo Mountain, so it is possible to assume that it occurs in many rainforests areas of Northern N.S.W.

This is a highly specialised species restricted to rain forest areas, although quite common in this habitat. On bright sunny days, I have observed many specimens resting on logs in the shade, where they are much better camouflaged than in the sun as their glistening dorsal colouration is eye catching. They are also active during or after showery rain. The favourite refuge of this species is in the cracks of large logs on the forest floor. These offer excellent protection which the lizards rarely leave. They do not exhibit any arboreal habits.

This skink has a very handsome colouration, being glistening greenish-gold dorsally, darker sides spotted with yellow and blue. It attains a length of approximately 23 cm (9 inches).

I kept five specimens in a 91.5 cm (3 foot sq.) enclosure and they soon exhibited extreme territorial display towards each other, and fought savagely. In a few weeks all specimens were scarred and lost tails. One specimen was killed, and after this the remaining specimens settled down to territories they had picked. On only one occasion was subsequent challenge observed.

A characteristic of these skinks is their ability to make a short high pitched squeak. This they did whenever handled or when fighting with each other. I believe they rapidly exhale air through a slightly open mouth to produce a sort of reptilian whistle. The mouth distinctly opens slightly when they make these noises.

Tryon's skinks are easy to keep in captivity provided they are not in close quarters with each other. They eat insects, earthworms, fruit, in fact anything that is offered. I found them to be active although secretive, and totally diurnal in captivity.

THE REPTILES OF THE OUTER NORTH-WESTERN SUBURBS OF SYDNEY

by D. Green

In the following listing of species observed, the status common, uncommon, rare etc. refers to the relative frequency of sightings by the author and colleagues, and does not necessarily reflect actual occurrence of the species in these or other areas.

Suburbs:
Galston, Arcadia, Hornsby, Pennant Hills, Dural, Mount Kuring-gai Cheltenham, which are all at least 16 miles from the city centre.

The Area:
This area is typical of the Hawkesbury River sandstone region, having rock outcrops, wet (in valleys) and dry (on ridges) sclerophyll forest areas, with some Acacia and Hakea scrub. It is transversed by several small creeks in the headwater tract. It is very hilly country, and on outcrops there are crevices caused by exfoliation. Rock on rock environments provide the main micro-habitats. There is little evidence of man in most areas. Rainfall 35 inches p.a. (average year).

The Reptiles

1. SNAKES

Eastern Brown Snake – (Pseudonaja t. textilis)
Occur in some dry rocky areas throughout the district. They seem to to especially fond of sunbaking on top of ridges.

Tiger Snake – (Notechis s. scutatus)
Rare. One juvenile specimen found on fire trail at Pennant Hills.

Death Adder – (Acanthophis a. antarcticus)
Rare. Two specimens seen in wet sclerophyll forest area at Pennant Hills.

Red-Bellied Black Snake – (Pseudechis porphyriacus)
Found along creeks and ridges.

Yellow-Faced Whip Snake – (Demansia p. psammophis)
Very common along ridges and near rock outcrops.

Small-Eyed Snake – (Unechis nigrescens)
Uncommon. Sometimes found in scrubby areas.

Red-Naped Snake – (Furina diadema)
Common in isolated rocky areas about 3 miles north of West Pennant Hills Post Office.

Marsh Snake – (Hemiaspis signata)
One specimen found under tin in a residental area.

Golden Crown Snake – (Cacophis squamulosus)
Rare. Some specimens have been reported at Castle Hill.

Eastern Blind Snake – (Rhamphotyphlops nigrescens)
Numbers vary from year to year. Found in wet and dry sclerophyll forest areas.

Diamond Python – (Morelia s. spilotes)
Rare. Sometimes found in scrubby areas.

Green Tree Snake – (Dendrelaphis punctulatus)
Uncommon. Sometimes found in scrubby areas.

Brown Tree Snake — (Boiga irregularis)
Small colonies are sometimes found in exfoliated sandstone regions.

11. LIZARDS

Stone Gecko — (Diplodactylus vittatus)
Occur in dry, flat areas covered with stunted trees and scree.

Lesueur's Gecko — (Oedura lesueurii)
Occurs in exfoliated sandstone regions. Common at Galston.

Southern Leaf Tailed Gecko — (Phyllurus platurus)
Abundant in exfoliated regions. Up to 12 may be found in the same crevice.

Thick Tailed Gecko — (Underwoodisaurus millii)
Uncommon. Sometimes encountered in rocky areas.

Bouton's Snake-Eyed Skink — (Cryptoblepharus boutonii)
Occurs in small colonies in a wide variety of environments.

Weasel Skink — (Leiolopisma mustelina)
Common in grassy areas, otherwise rare.

Three-Lined Skink — (Leiolopisma trilineata)
Common in some grassy farming areas, where it occurs alongside the weasel skink.

Red-Throated Skink — (Leiolopisma platynotum)
Occurs in nearly all bushy areas with rock on rock environments.

Common Grass Skink — (Leiolopisma guichenoti)
Common in all areas.

Eastern Blue Tongue — (Tiliqua scincoides)
Generally common, especially in farming areas.

Cunningham's Skink — (Egernia cunninghami)
Common in exfoliated sandstone regions. Sometimes small colonies occur.

White's Skink — (Egernia whitii)
Generally uncommon, though in the Mount Kuring-gai area they are plentiful.

Three-Toed Skink — (Saiphos equalis)
Common in areas where there is a lot of humus.

Copper Tailed Skink — (Ctenotus taeniolatus)
Abundant in flat sandy areas covered with scree.

Striped Skink — (Ctenotus lesueurii)
Sometimes encountered in grassy areas.

Water Skink — (Sphenomorphus quoyii)
Very common along creeks in summer.

Bar-Sided Skink – (Sphenomorphus tenuis)
Occurs in isolated colonies. Predominately tree-dwelling in this region.

Lace Monitor – (Varanus varius)
Occurs over most of the area, and is especially common at Arcadia.

Burton's Legless Lizard – (Lialis burtonis)
Uncommon, sometimes found in dry sandy areas, where it occurs beside Demansia psammophis.

Scaly Foot – (Pygopus lepidopodus)
One specimen found in North Rocks area

Bearded Dragon – (Amphibolurus barbatus)
The eastern form is sometimes encountered in grassy areas.

Jacky Dragon – (Amphibolurus muricatus)
Sometimes found in hilly and grassy areas.

Mountain Dragon – (Amphibolurus diemensis)
Rare. One specimen found at Mount Kuring-gai.

Water Dragon – (Physignathus lesueurii)
Common along isolated creeks. They live in rock crevices in this region.

111. TORTOISES
Long-Necked Tortoise – (Chelodina longicollis)
occurs in isolated creeks.

Macquarie Tortoise – (Emydura macquarii)
One specimen found in a dam at Dundas. Possibly a released specimen.

Acknowledgements:
I would like to thank Messrs. Strong, Sharpe, Howe, Owens, Milne, Mansell and Zuulman who helped considerably in this survey.

MY FIRST SEA SNAKES

by M. Friendship

I joined the twin-screw motor vessel "Coralita" at Yeppoon, Queensland. The 80 foot diesel-powered cruiser was fully equipped for diving and was bound for Marion Reefs, 100 miles north of Swain Reefs.

We were fortunate to have a well known herpetologist on board, Mr. Eric Worrell, who told us not to fear the sea snakes, but respect them as they only bite if alarmed. Having viewed television programmes and read articles on them, I had previously pictured sea snakes as aggressive reptiles, and had been warned to avoid them.

I had my first encounter with a sea snake at the Swain Reef, 120 miles off the coast. Swimming to within a few feet of a small olive sea snake I was surprised to find that it wasn't the least bit interested in me. It was rather slow moving, but later I found that they can swim quickly. Coming closer I could see its laterally flattened tail tapering to a rounded end.

My first capture was a small Olive sea snake, similar to the one I had observed. The snake was surfacing for air when I saw it, so I left it to breathe. Once I had made up my mind I quickly placed the net over the snake and closed it by twisting as I was shown previously on board. When bringing the snake back, I felt a thrill of achievement in capturing my first sea snake and I was eager to try again, knowing I was contributing something to science. During that morning, I was lucky enough to catch six sea snakes, four small, and two large, of several different species. After catching these I lost my fear of snakes. Later that day when scuba diving at 60 feet, I met two inquisitive sea snakes, one of which swam between my legs and headed for my face mask. Even though I was quite sure it would not bite, I still felt wary without a net as it followed me.

As proof of how effective nets are for catching sea snakes, our tally numbered over one hundred in five days, a number which I believe, has never been reached before in Australian waters. With our trip coming to an end, the total number of sea snakes caught in ten days was two hundred and eight, a great effort by divers, only one of whom had ever caught a sea snake previously. By this time we had six different species of sea snakes, the most common being the Olive sea snake. Most of the snakes had been milked of their venom and returned to the sea alive, except for a few which were taken to the Australian Reptile Park, for exhibition and study. These were kept in stainless steel tanks with running sea water.

While observing the fish and sea snakes I noticed that the coral bommies and reefs have a network of tunnels. Sometimes while chasing a sea snake, it would swim into one hole and come out another several feet away or even the other side of the bommie. Possibly sea snakes, which seem to be poor hunters, use these tunnels to trap their prey as they were often seen poking their heads into holes and crevices in coral reefs and venturing under ledges at the base of the coral bommies. These coral reefs and bommies are incredibly beautiful. They are made up of hundreds of different coloured coral formations. Plant growths, such as Gorgonia, are also plentiful all over the reef, and gaudily coloured fish abound, seeking refuge amongst them.

CLASSIFICATIONS OF AUSTRALIAN SKINKS

At a recent lecture to the Society of the classification of Australian skinks, Dr. Harold Cogger provided a list of currently recognised names of Australian skinks. He also stressed the difficulties involved in applying common names to many of these lizards, and suggested that members of the Society might devise suitable common names where necessary. This would be a first step to the production of an "official" or standard list of common names for Australian reptiles and frogs.

The following list of scientific names takes into account recent changes in the classification of Australian skinks, especially at the generic level. It also includes some changes currently proposed; however, although some of the combinations may appear to be new, all names given have been published, at one time or another, in the literature. Dr. Cogger also pointed out that because of the large amount of work being carried out in skink taxonomy at present, we can anticipate some major changes in the near future. In the list below subspecies have not been dealt with.

Common names have been listed when one is known to be in use. Photographs are all by courtesy of Dr. Cogger.

ANOMALOPUS	FRONTALIS LENTIGINOSUS OPHIOSCINCUS RETICULATUS TRUNCATUS VERREAUXII (Verreaux Burrowing Skink) Fig. 1
CARLIA	BICARINATA BURNETTI COENSE FUSCA (Brown Four Fingered Skink) LATERALIS MELANOPOGON — Fig. 2 NOVAEGUINEAE PERONII RHOMBOIDALIS TETRADACTYLA (Rainbow Skink) TRIACANTHA VERTIBRALIS VIVAX
CRYPTOBLEPHARUS	BOUTONII (Bouton's Snake Eyed Skink) Fig 3 LITORALIS
CTENOTUS	ALACER ARIADNE ATLAS BRACHYONYX BROOKSI

CALURUS
COLLETTI
(Collett's Skink)
DECANEURUS
DUX
ESSINGTONI
GRANDIS
HELENAE
HILLI
IMPAR
INORNATUS
JOANAE
LABILLARDIERI
(Labillardier's Skink)
LEAE
LEONHARDII
(Leonhard's Skink)
LESUEURII
(Lesueur's Striped Skink)
MIMETES
PANTHERINUS
PIANKAI
QUATTUORDECIMLINEATUS
(Four Lined Skink)
REGIUS
ROBUSTUS
SAXATILIS
SCHEVILLI
SCHOMBERGKI
SEVERUS
SPALDINGI
(Spalding's Skink)
STRAUCHII
TAENIATUS
TAENIOLATUS
(Copper Tailed Skink) Fig. 4
TANAMIENSIS
UBER

KINGII
(King's Skink)
KINTOREI
(Kintore's Skink)
LUCTUOSA
MAJOR
(Land Mullet)
MARGARETAE
MODESTA
MULTISCUTATA
PULCHRA
RICHARDI
SAXATILIS
(Rock Skink)
SLATERI
STOKESII
(Western Spiny Skink)
STRIATA
STRIOLATA
(Tree Skink)
WHITII
(White's Skink) Fig. 5

EMOIA
ATROCOSTATA
CYANOGASTER
NIGRA

EUGONGYLUS
ALBOFASCIOLATUS
RUFESCENS — Fig. 6

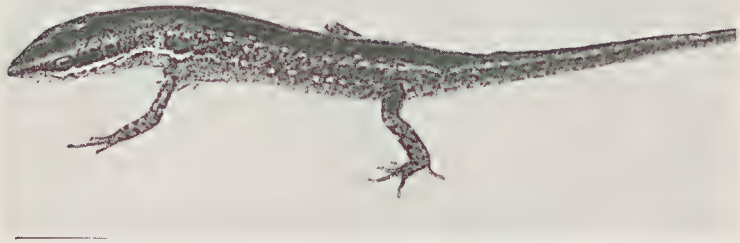
EGERNIA
CUNNINGHAMI
(Cunningham's Spiny Skink
DEPRESSA
(Depressed Spiny Skink)
DORSALIS
(Forest Skink)
FORMOSA
FREREI
HOSMERI
(Hosmer's Spiny Skink)
INORNATA
(Rosen's Desert Skink)

HEMIERGIS
DESCRESIENSIS — Fig. 7
GRACILOIDES
INITIALIS
MACCOYI
PERONII
QUADRILINEATUM
TRIDACTYLUM
WOODWARDI

LEIOLOPISMA	CHALLENGERI DELICATA (Fence Skink) ENTRECASTEAUXII GUICHENOTI (Garden Skink) LICHENIGERA METALLICA (Metallic Skink) MUSTELINA (Weasel Skink) Fig. 8 OCELLATA (Green Skink) PLATYNOTA PRETIOSA TRILINEATA (Three lined Skink)
LERISTA	ALLANAE BIPES (Two Toed Desert Skink) BOREALIS BOUGAINVILLII (Bougainville's Skink) CONNIVENS DESERTORUM DISTINGUENDA ELEGANS FRAGILIS FROSTI GERRARDII HUMPHRIESI KARLSCHMIDTI LABIALIS — Fig. 9 LINEATA LINEOPUNCTULATA MICROTIS MUELLERI NEANDER NICHOLLSI ORIENTALIS PICTURATA PLANIVENTRALE PRAEPEDITA PUNCTATOVITTATA STYLIS TERDIGITATA WALKERI WILKINSI
MENETIA	GREYI — Fig. 10
MORETHIA	ADELAIDENSIS BOULENGERI BUTLERI

	LINEOOCELLATUS — Fig. 11
	OBSCURA
	TAENIOPLEURA
NOTOSCINCUS	ORNATUS
	DAVISI
	KINGHORNI
	WATJULUM
PROABLEPHARUS	REGINAE
	TENUIS
PSEUDEMOIA	SPENCERI — Fig. 12
SAIPHOS	EQUALIS — Fig. 13
SPHENOMORPHUS	AUSTRALIS
	CRASSICAUDUS
	FASCIOLATUS
	(Banded Skink)
	ISOLEPIS
	KOSCIUSKOI
	MJOBERGI
	MURRAYI
	NIGRICAUDIS
	PARDALIS
	PUMILUM
	PUNCTULATUS
	QUOYII
	(Water Skink) Fig. 14
	RICHARDSONI
	(Ghost Skink)
	SCUTIROSTRUM
	TENUIS
	(Bar Sided Skink)
	TIGRINA
	TYMPANUM
TILIQUA	ADELAIDENSIS
	(Adelaide Bluetongue)
	BRANCHIALIS
	(Spotted Necked Skink)
	CASUARINAE
	(She Oak Skink)
	GERRARDII
	(Pink Tongued Skink)
	NIGROLUTEA
	(Blotched Blue Tongue)
	OCCIPITALIS
	(Western Blue Tongue) Fig. 15
	SCINCOIDES
	(Eastern Blue Tongue)
TRACHYDOSAURUS	RUGOSUS
	(Shingle Back) Fig. 16
TROPIDOPHORUS	QUEENSLANDIAE
	(Prickly Rain Forest Skink) Fig. 17

Anomalopus verreauxii



Carlia melanopogon

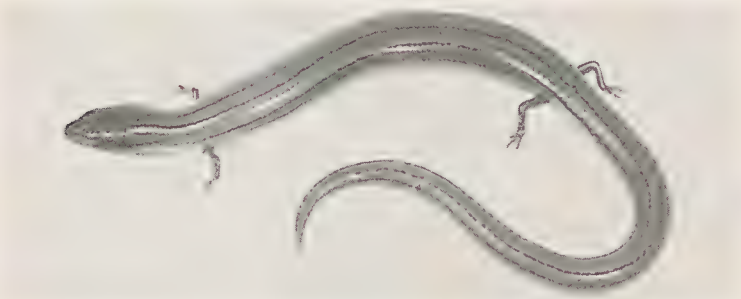
Cryptoblepharus boutonii

Ctenotus taeniolatus

The scale line under each photograph represents 5 cm.

Egernia whitii

Eugongylus rufescens



Hemiergis decresiensis

Leiolopisma mustelina

The scale line under each photograph represents 5 cm

Lerista labialis

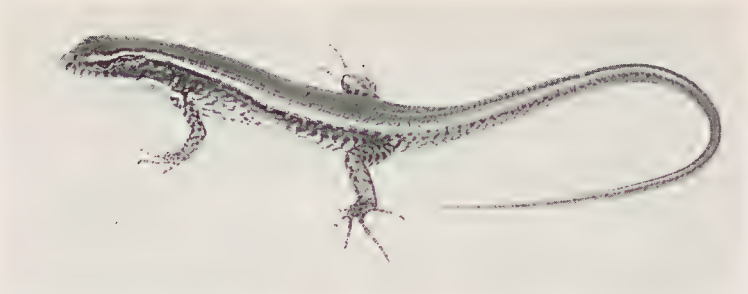
Menetia greyi

Morethia lineoocellatus

Pseudemoia spenceri

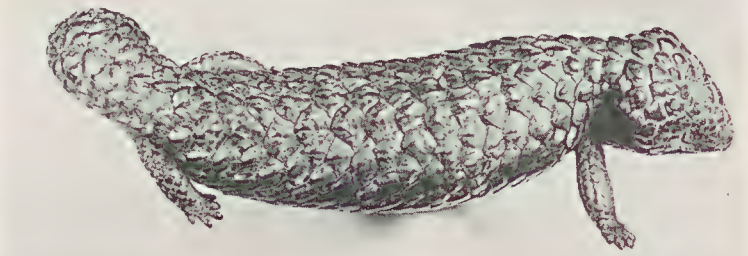
Saiphos equalis

The scale line under each photograph represents 5 cm.



Sphenomorphus quoyii

Tiliqua occipitalis



Trachydosaurus rugosus

Tropidophorus queenslandiae

The scale line under each photograph represents 5 cm.

THE WALL LIZARD
CRYPTOBLEPHARUS BOUTONII VIRGATUS

by R. Cook

This species is a common reptile throughout the Sydney metropolitan area, although little is known about its habits. Adaptation to the immense changes that have occurred to its former habitats of sclerophyll forest and sandstone outcrops deserve special comment. Over the majority of the area that Sydney now occupies, there was a natural bushland similar to adjacent areas. Such is the adaptability of the lizard that even where housing development is dense, it is possible to observe small colonies on the walls of brick buildings and paling fences. I have never observed any other reptile of comparable dimensions climbing such high vertical structures. Along the narrow brick courses where the mortar has eroded away many homesites have been produced, which provide shelter from the weather. Predators include cats, starlings, Indian mynahs and spiders, — particularly red-backs. Its agility and choice of vertical faces makes it difficult prey for these predators.

From my observations, I have come to the conclusion that this species is active throughout the year, but during unfavourable conditions, they of course remain within their homesites. When the temperature is above 18c. and the sun is shining, C. boutonii will be found basking. If the temperature approaches 40c. their thermoregulatory behaviour is to move into shade. This is most noticeable on a summer afternoon, as they have raised their body temperature to a comfortable limit during the morning.

From the turn of spring until the beginning of summer, courtship displays can be observed when the temperature is between 18c. and 25c. The two or three eggs are laid in a sheltered spot under a permanent location. The exact incubation period is not known, but is assumed to be two or three months.

Markings are distinctive in this sub-species, light silver with tiny black speckles along the laterals, dorsally black with two parallel, dorsolateral cream stripes. Ventrally, it is a dull white. The colouration of specimens from Inisfail Qld. showed lighter dorsal surfaces.

An interesting fact concerning the wall lizard is that, with its subspecies, it occurs world-wide. In Australia, its range is restricted to the eastern seaboard and the Great Dividing Range. Throughout the tropical Pacific its distribution extends from Australia through many islands to the coast of Peru and Chile. To the west it is found in South Africa and the island of Madagascar. Many different habitats occur in these areas and it appears to have adapted itself well. The habitats within its range in Australia vary from Sclerophyll forest, Woodlands, Rainforests, Savannah to coastal woodland. Many reptiles have distributed themselves well during their history. There are three possible ways C. boutonii could have done so. The first is by migration via a landbridge. This is how the Australian population arrived from New Guinea, long ago. The second alternative is to drift from one body of

land to another, on flotsam as may have been the case between Pacific Islands. The third alternative is migration on boats, canoes or aircraft. Since the wall lizard is such a small skink it wouldn't be difficult for a few individuals to move about in this way. This is how a number of geckos have located themselves in other parts of the world. For example the African House gecko (Hemidactylus mabouia) and the Turkish gecko (Hemidactylus turcicus), migrated by ship to the West Indies.

TWO LARGE WINTER AGGREGATIONS OF THREE SPECIES OF TREE-CLIMBING SNAKES IN SOUTH-EASTERN QUEENSLAND

by Jeanette Covacevich and Colin Limpus

Very little has been published on the habits of Australian snakes in their natural environment and, for this reason, it is considered useful to describe and comment on two recently reported mass winter aggregations (in the sense of Mertens, 1960, p.121), each of Boiga irregularis, Dendrelaphis punctulatus and Morelia spilotes variegata.

Both aggregations were reported to the Queensland Museum following their discovery during clearing operations. Their locality data is set out below.

1. Black Mountain road, via Cooroy, SE.Q. (Gympie 1:250000 596723) July, 1972. "Between thirty and forty specimens like writhing spaghetti in a bad dream", eleven specimens in the Queensland Museum reference collection, J22407-17.

2. Long Flat, via Gympie, SE.Q. (Gympie 1:250000 584737) August, 1973, nineteen specimens, none deposited in Queensland Museum collection.

The Cooroy site was inspected by us (11th July, 1972), one day after its discovery and destruction. It was an area of open forest (predominantly Spotted Gum and Tallowood) with a rather dense regrowth layer in hilly country. The old dead tree in which the snakes were discovered was on a 30^{o} slope with an easterly aspect. It was approximately 40-50m tall, hollow inside, but partly filled with termite nest, and lacked branches. Eleven specimens of three species — B. irregularis, D. punctulatus, M. spilotes variegata — were brought to the Queensland Museum from this tree and, according to the bulldozer driver no other species were represented. B. irregularis was the most common species. Most of the 30-40 snakes involved were found in the tree upwards from about 15m which was just above the canopy of the surrounding vegetation. Table 1 shows information relating to the eleven specimens examined. It is interesting to note that, with only one exception (J22409), none of the snakes had eaten for some time. Despite this all

specimens seen were in extremely good condition and it seems reasonable to assume that this also applied to the other snakes. Sexes and sizes are mixed in the sample. The sex ratio of the sample examined does not differ significantly at the 0.05 probability level from a one to one sex ratio. The Yates correction for small samples was applied in the calculation of the chi-square value.

Soon after the Cooroy aggregation was discovered specimens of Typhlops sp (J22403), Unechis nigrescens (J22462), Tiliqua gerrardii and the large earth worm Heteroporodrilus cf. tryoni were found inside the bases of old rotting trees in similar situations in adjacent paddocks. The higher hollow parts of these trees housed specimens of the Short-eared Brush-tailed Possum, Trichosurus caninus, Squirrel Glider, Petaurus norfolcensis and the Owlet Nightjar, Aegotheles cristatus.

The Gympie site was not seen by us but has been described (R. Lawrence, pers. comm.) and is very similar to the one near Cooroy although there is very little regrowth vegetation here. Nineteen snakes a mixture of the same three species, were found in the one hollow dead tree trunk. No further data is available on these specimens. At both the Cooroy and Gympie sites similar adjacent dead trees contained no such aggregations. When disturbed the snakes from the two aggregations immediately began to disperse, although slowly at first. The Brisbane office of the Bureau of Meteorology has supplied the temperature records set out in Table 2 for Gympie and Tewantin. The latter is only 16km east of Cooroy and would be slightly warmer than the aggregation site. At Tewantin the extreme temperature range for July, 1972 was 2.2^{o} — 24.4^{o}C; average daily minimum and maximum for July, 1972 were 8.0^{o} and 21.0^{o}C. Gympie figures for August 1972 and 1973 are not available but the extremes for August, 1971 were 1.6^{o} — 27.2^{o}C and the average daily minimum and maximum temperatures were 8.3^{o} and 23.3^{o}C.

Only two other tree-climbing species are known from this area. These are Hoplocephalus stephensi and H. bitorquatus both of which are uncommon in the district. Table 3 shows the snakes in the Queensland Museum reference collection from the Cooroy-Gympie area.

In assessing the possible reasons for these aggregations two types of aggregation have been discounted. These are —

(a) Aggregations of very young snakes which have not moved away from their birth or hatching site. Newly born snakes were not reported from either site.

(b) High uniform density occupations of one area. Amphiesma mairii has been found very commonly in some moist habitats — Brisbane, SE.Q. (Lyon, 1973, p.3); Wongabel, NE.Q. and Bundaberg, SE.Q. (C.L.) — and Pseudechis porphyriacus has been observed as extremely common along tracks in closed forest at Danbulla, NE.Q (C.L.).

Communal dwelling is known for several Australian snake species.

D. punctulatus

Kinghorn (1956, p.85); McPhee, (1959, p.26); four specimens under shedding bark of a dead tree, Hendra, Brisbane, SE.Q. June, 1965, (C.L.).

Demansia psammophis
Possible summer breeding aggregations, Covacevich and Limpus (1972, p.209).

U. nigrescens
5 specimens under a stack of sheet iron, Burleigh Heads National Park, SE.Q. July, 1965, (C.L.); 3 specimens under sheet iron, Samford SE.Q. August, 1968, (C.L.).

Hemiaspis signata
McPhee (1959, p.54).

Aggregations have not been reported for B. irregularis and M. spilotes variegata and there are apparently no records of utilization of the one retreat by several Australian species.

In the absence of evidence to suggest otherwise, these winter aggregations of mixed species of snakes would appear not to be directly associated with breeding as we suggested for the summer aggregations of D. psammophis. These winter aggregations appear to have occurred where some behavioural thermoregulation was possible by choice of suitably warmed refuges, such sites surely being of limited availability in the cooler months. The immediate activity of the aggregated snakes following disturbance suggests that they were using the trees as warmer retreats rather than for hibernation (in the sense of Bellairs, 1969, 1, p.230) during the coldest months (July and August) in the Cooroy-Gympie area. During this winter inactivity these snakes were apparently feeding infrequently. Bustard (1970, p.61) has noted thermoregulatory behaviour and a reduction in feeding during winter by geckoes (not aggregated) in northern New South Wales.

The dead trees were taller than most of the surrounding vegetation and could have offered warmth, a retreat chamber and access to and from the surrounding canopy for these three species of arboreal snakes all seeking the most favourable conditions available. Several other apparently "suitable" trees in the same area were not utilised in this way. Many other factors, possibly differences in aspect, height, humidity, safety, or the nature of the chamber could also have contributed to the choice of tree. A similar explanation in terms of winter thermoregulation could probably also account for the other smaller winter aggregations under bark and iron reported from southeast Queensland. However Pope (1956, p.137) has suggested that there may be an advantage in aggregating since snakes hibernating together lose less moisture. Although the Cooroy-Gympie area is quite moist and well watered, this habit of aggregating could perhaps reduce the amount of movement to and from water necessary for the snakes to remain healthy through out the cold months. Parker (1963, p.59) suggests a second advantage in the massing of snakes in a hibernaculum — that there would be conservation of the very small amount of heat that could be generated endogenously. This perhaps could be an important consideration if heat losses by isolated individuals were greater than the heat gained from the environment on a daily basis as could well have been the case with the snakes in these south Queensland winter aggregations. Any advantage in increasing the reproductive success of the population through the winter aggregation providing a good supply of breeding pairs in the early spring when the snakes emerge from the retreat (Bellairs 1957, p.176) would seem lost

in the Cooroy aggregation with so few females represented in the sample. The significance of the disproportionate number of males in this sample is not clear without further data being available on the sex ratio of the local populations of the species involved and the sex ratios of other whole aggregations.

In the two cases reported here it would seem that many arboreal snakes faced with similar problems during the cooler months have utilised ideal sites in which they could maintain "comfortable" body conditions. These snakes were apparently unperturbed by the presence of individuals of the same or different sex or species. Whether or not the snakes were brought together because of limited availability of suitable warm winter retreats and to what extent there was mutual benefit for the snakes as a result of the aggregations can not be answered finally on the available data.

Acknowledgements
Superintendents K. Midgley and R. Lawrence drew our attention to the aggregations and Mr. I. Graham provided additional information on the Cooroy site.

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TABLE 1

Eleven Queensland Museum specimens from the Cooroy site, SE.Q.

			SV	TAIL	GUT	FAT
J22407	D. punctulatus	♂	89.0cm	—	—	+
J22408	D. punctulatus	♀	99.5	39.1cm	—	+
J22409	D. punctulatus	♂	89.0	—	Litoria sp. remains	+
J22410	D. punctulatus	♂	82.0	33.0	—	+
J22411	D. punctulatus	♂	69.5	28.3	—	+
J22412	Boiga irregularis	♂	122.5	28.0	—	+
J22413	Boiga irregularis	♂	113.0	29.6	—	+
J22414	Boiga irregularis	♂	104.5	24.6	—	+
J22415	Boiga irregularis	♂	67.5	16.9	—	+
J22416	Boiga irregularis	♂	65.0	15.3	—	+
J22417	M. spilotes variegata	♀	70.5	12.5	—	+

TABLE 2

Average monthly maxima and minima for Tewantin and Gympie, in degrees centigrade.

	J	F	M	A	M	J	J	A	S	O	N	D	
Gympie (over 29 years)	19.3	19.3	17.8	14.3	10.2	7.9	6.1	6.7	9.9	13.6	16.2	18.3	min.
	31.4	30.6	29.4	27.8	24.9	22.2	21.9	23.4	26.1	28.7	30.4	31.4	max.
Tewantin (over 20 years)	19.9	20.1	19.1	16.7	12.8	10.6	9.5	9.1	12.2	15.2	17.2	18.9	min.
	28.5	28.3	27.3	25.8	23.3	21.5	21.1	21.8	23.5	25.8	27.4	28.4	max.

TABLE 3

Snakes in the Queensland Museum collection from the Cooroy-Gympie area, SE.Q.

Typhlops
Liasis childreni
Morelia spilotes variegata
Boiga irregularis
Dendrelaphis punctulatus
Amphiesma mairii
Cacophis squamulosus
C. krefftii
C. harriettae
Furina diadema
Demansia psammophis
Hoplocephalus bitorquatus
H. stephensi
Vermicella annulata
Unechis nigrescens
Hemiaspis signata
Pseudonaja textilis
Tropidechis carinatus
Notechis scutatus
Acanthophis antarcticus
Pseudechis porphyriacus
Oxyuranus scutellatus

OBSERVATIONS ON THE SOUTHERN LEAF-TAILED GECKO PHYLLURUS PLATURUS (SHAW)

by D. Green

Also known as:
Broad tailed gecko, rock gecko and "stone-adder".

Introduction:
The current study began in 1971 in the Pennant Hills area — a predominately sandstone region. All captive and field observations were made by the author and colleagues unless otherwise specified.

Although some interesting observations have been noted, the study is far from complete and is continuing.

General Notes:
This species is a dorsally compressed lizard with a rather broad appearance. It has a very prickly skin dorsally, but vertically is smooth. The toes are clawed. The males can be distinguished from the females in that they have 3 spines on a small gland behind the rear legs.

The colour of this gecko is usually light brown or grey, similar to the sandstone in which it lives.

Distribution:
From south of Sydney through to southern Queensland — (Worrell 1970). Present observations are confined to the area from Gosford to Sutherland, and as far west as Bell (Blue Mts.). P. platurus does not appear to occur west of the Blue Mountains.

Habitats:
They are restricted to sandstone areas where they are found in 2 distinctive habitats — caves and exfoliated crevices protected from sunlight.

1. Caves
The sand-blown caves found in Hawkesbury sandstone areas offer a suitable micro-environment for P. platurus, which

may be found clinging to the roof of the cave. Insect life in these caves appears to be restricted to spiders (Drassidae sp), several species of moths and cave crickets — a small nocturnal cricket adapted to sandstone regions.

2. Crevices

By far the most common micro-environment is provided by the crevices that occur in sandstone ridges. These are formed by exfoliation. The crevices preferred by P. platurus are those without moss and debris. In these crevices they occur beside Oeudura lesueurii and Egernia cunninghami. They are found in both vertical and horizontal crevices. The insect life in these crevices appears similar to that of caves, except for moths.

Where suitable environments occur, large colonies of P. platurus can be found. In October, 1972, 16 specimens were found in one crevice. Seasonal variations in colony numbers is possible, and in times of heavy rain the geckos move out of the crevices adjoining caves and into the caves. This appears to be due to the seepage which occurs in most sandstone crevices. Vegetation found above ridges is usually dry sclerophyll forest.

It is interesting to note that at night the geckos do not move into the surrounding forest, but appear to stay on the sandstone to hunt their food.

Where suburbs have sandstone ridges nearby, P. platurus may sometimes be found under brick houses. The under-house environment is similar to that found in caves. They take advantage of the lights on in houses, and at night they may be found hunting moths and other insects.

Feeding

A fair guide to feeding habits was obtained from faecal contents, and also from captive specimens. Seasonal variation in diet is possible. One sample of faeces from a specimen collected at Pennant Hills revealed the remains of a flat spider. (Hemicloea sp.). Another revealed the remains of several beetles. (10th October 1973). Several other faecal contents revealed the remains of cave crickets and moths.

The type of insects eaten varies greatly — types that I have not recorded in natural bushland are readily eaten in captivity (e.g. slaters). In captivity they were generally poor feeders when kept in small cages, but in large outdoor cages with a semi-natural environment they ate well, sometimes taking food in the first few days of captivity.

Captive specimens ate most types of insects and arachnids generally. Food consumed by P. platurus over a 2 year period included slaters, earth worms, spiders (Including red-backed spiders), moths of several types, varying in size up to 11.5 cm (4½ inches) wing span, segmented larvae of beetles, mantids, phasmids, grasshoppers, butterflies, mayflies and flies, cave crickets and a juvenile specimen ate sugar ants (campanatus sp.).

P. platurus appears quite game when hunting food. A 14 cm (5½ inch) specimen attacked a 28 cm (11 inch) phasmid, and managed to subdue it after 10 minutes. It rubbed the phasmid against the rock, and the insect folded in half. The gecko did not manage to eat the phasmid.

When hunting, they stand high on their toes and when they come across prey, the head is quickly jerked down in a stabbing action. The food is then promptly swallowed.

A specimen was once observed lapping water dripping down the side of a cage.

Activity

Essentially, P. platurus is nocturnal. They emerge only when it is completely dark and above 17 degrees celsius. They move around the ridges, and when a torch is shone on them scuttle quickly back to their crevices.

Juvenile specimens appear to have the same activity periods as adults.

The eye in P. platurus is very large. The pupil is vertical and when active it fills the whole eye.

Defensive Reactions

Tail shedding is a common occurence in P. platurus. About 70% of all adults observed had regrown tails. Sometimes the tail is dropped on capture.

When first caught P. platurus will sometimes bite. They squeak loudly and often for up to 20 seconds. One specimen, when confronted by a sub-adult bluetongue (T. scincoides), put on a great show of bluff. It stood up high on its legs, giving a shrill cry, with its tail bent perpendicular to its body. Specimens also behaved like this when sprayed with a hose or rubbed on the back.

The colouring of this lizard is highly cryptic, being similar to the sandstone on which it lives. The rough tubercules on the back of this gecko correspond to the pebbles etc. found in sandstone. The "flat" wedge shape of P. platurus also aids in its camouflage against the rocks in which it lives.

Factors controlling population

The greatest population controlling factor would probably be the encroachment of man into bushland areas. Although they can adapt, they appear not nearly as common in urban areas as bushland ones.

Natural Predators:

Some possibilities would be Macleay's marsupial mouse (Antichinus stuartii), as remains of geckos and other small animals were found in caves inhabited by this species. Small bats, which are common in the area and owls may also eat geckos.

In captivity, brown tree snakes (Boiga irregularis) caught in the same area as P. platurus will readily eat these geckos. In urban areas the greatest predators would probably be domestic cats and rodents.

P. platurus is usually infested with red mite.

Growth and Reproduction

In captivity specimens were observed mating in May 1972 (Temp; 19 deg. C). K. Strong reported observations of mating in the same period. In October most of the females are heavily gravid, and the eggs are

laid mostly from this time to early November. (captive observations). They lay 2 eggs, generally about 1.5 cm long.

On January the 14th an egg was collected in a cliff face near my home (Pennant Hills). On arrival home, it was found that the egg had hatched in the bag, and the young lizard appeared to have suffered no ill effects.

Measurements: S.V. 3.2 cm. T. length. 4.8 cm.

This specimen came from an extremely large egg — much longer than usual.

In the wild, the eggs of several geckos are usually laid in the same spot, and are situated well back in crevices. Captive specimens usually laid eggs in the crevices provided in the cage, but some specimens laid eggs in the open.

Growth

The largest specimen collected was 14.6 cm. long, but had an extremely large regrown tail. Juveniles captured in June were usually about 5-6 cm. long. They grow fairly rapidly and reach about 7 cm. after the end of the first year. (field observations).

It is not known at what age they become sexually mature.

Growth rates of Specimens

Collected Hornsby. Male. Tail regrown.

Jan. '73	11.8 cm
Jun. '73	13.0 cm
Oct. '73	13.4 cm

Captive specimens regenerated their tails in about 3½ months — much quicker than the usual time. The regenerated tails in these specimens were distinctly orange-red in colour.

Locomotion

They move with a swift scuttling motion. When the two left legs are together, the right legs are apart, and vice versa. They generally move slowly, but can move quickly when pursued.

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38 New Farm Road, West Pennant Hills. N.S.W. 2120.

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N.S.W. FAUNA PROTECTION ACT

Following the final Gazettal of the Regulations on 14th December, 1973 the amendment to the Fauna Protection Act relating to the protection of reptiles is now in force.

Members of the Society in N.S.W. will receive separately more detailed notes concerning the Act and its requirements but in the meantime we set out below some points of interest.

1. Reptiles are now protected in New South Wales.

2. The term reptile is defined as meaning "Snake, lizard, crocodile, tortoise, turtle or other members of the reptilia (whether native, introduced or imported) and the eggs and young thereof and the skin or any other part thereof".

3. A six month adjustment period from the 14th December, 1973 has been allowed and in this time reptile fanciers must complete a certificate of registration form and lodge it with the National Parks and Wildlife Service.

4. The sale and exchange of reptiles is unfortunately still allowed within the six month adjustment period.

5. Certain reptiles have been declared Rare Fauna, these are:

   Diamond Python (Morelia spilotes)
   Childrens Python (Liasis childreni)
   Woma (Aspidites ramsayi)
   Braod-Headed Snake (Hoplocephalus bungaroides)
   Rain-forest Dragon (Gonocephalus spinipes)

6. There are certain reptiles that, while protected, are exempt from the need to be registered. The reptiles are:

   Cunningham's Skink (Egernia cunninghami)
   Common Bluetongue (Tiliqua scincoides)
   Shingle-back (Trachydosaurus rugosus)
   If retained west of the Great Dividing Range.
   Eastern Water Dragon (Physignathus lesueurii)
   Eastern Water Skink (Sphenomorphus quoyii)
   Swamp Snake (Hemiaspis signata)
   Carpet Snake (Morelia spilotes variegata)
   Long-necked Tortoise (Chelodina longicollis)
   Short-necked Tortoise (Emydura macquarii)

No more than two of any of these listed species can be held by a person and remain exempt from the full provision of the Act.

MEETINGS

SYDNEY: Meetings are held on the 4th Wednesday of each month at 8 p.m. Ground Floor, Parramatta Town Hall.

MELBOURNE: Meetings are held on the 3rd Tuesday of each month at Conference Room, National Museum (through the archway off Little Lonsdale St.) Start 7.30 p.m.

MEMBERSHIP

Membership is open to any person with a genuine interest in Australian reptiles and amphibians.

Rates of Subscription for 1973/74:

Life Membership	$50.00
Family Membership	6.00
Ordinary Members	5.00
Overseas Members	5.00
Students (over 16 years)	2.50
Junior Members (16 years and under)	1.00
Subscribers to "Herpetofauna" (Aust. only)	2.00

Subscriptions should be made payable to the Australian Herpetological Society and posted to the Subscription Secretary, Victorian members may pay direct to the Victorian Branch Secretary.